

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Original) Method for defining a compression scheme of a media stream, the method comprising the steps of:

determining a plurality of compression levels for the media stream and a relationship between valid values of compressed representations of the media stream, each compressed representation of the media stream associated with one of the compression levels;

defining the highest level of compression of the compression levels as a base level; and

defining enhancement data for representing a relationship between valid values of the compressed representations of the media stream.

2. (Original) The method according to claim 1 wherein the enhancement data reflects a relationship between valid values of two successive compressed representations of the media stream.

3. (Original) The method according to claim 1 wherein the step of defining enhancement data comprises defining enhancement data if a valid value of a compressed representation of a media stream is associated with at least two valid values of a successive compressed representation of the media stream.

4. (Original) The method according to claim 1 wherein the media stream is defined as an original media stream; and

wherein a relationship between valid values of distinct compressed representations of the media stream reflect a relationship between valid values of

the original media stream mapped to the valid values of distinct compressed representations of the media stream.

5. (Original) The method according to claim 1 wherein the step of defining enhancement data relating to valid values of a pair of compressed representations of the media stream comprises checking a relationship between valid values of lower compressed representations of the media stream, lower compressed representations of the media stream being characterized by a higher compression level.

6. (Original) The method according to claim 1 wherein the step of defining enhancement data comprises defining a p'th layer enhancement data for valid values of pair of a (p-1)'th and a p'th compressed representations of the media stream, if the reconstruction of the valid values of the p'th compressed representation of the media stream requires the p'th layer enhancement data, whereas p ranges between 2 and k, k reflects the number of compression levels.

7. (Original) The method according to claim 6 wherein the media stream is defined as an original media stream; and

wherein the p'th layer enhancement data is responsive to valid values of the original media stream being associated with valid values of both the p'th and the (p-1)'th compressed representation of the media stream.

8. (Original) The method according to claim 6 wherein the p'th layer enhancement data is responsive to previous layer enhancement data and to valid values of the media stream being associated with valid values of both the p'th and the (p-1)'th compressed representation of the media stream.

9. (Original) The method according to claim 6 wherein each p'th layer enhancement data includes at least one p'th layer enhancement data symbol; and wherein a p'th layer enhancement data symbol reflects a relationship between valid values of a (p-1)'th and a p'th compressed representation of the media stream.

10. (Original) The method according to claim 9 comprising defining a p'th layer enhancement data symbol, in response to an amount of valid values of the p'th compressed representation of the media stream associated with the valid value of the (p-1)'th compression function.

11. (Original) The method according to claim 9 comprising defining a p'th layer enhancement data symbol, in response to previous layer enhancement data symbols and to an amount of valid values of the p'th compressed representation of the media stream associated with the valid value of the (p-1)'th compression function.

12. (Original) The method according to claim 9 comprising defining a p'th layer enhancement data symbol in response to valid values of the original media stream being associated with both the valid values of the (p-1)'th and the p'th compressed representation of the media stream.

13. (Original) The method according to claim 9 comprising defining a p'th layer enhancement data symbol in response previous layers enhancement data symbols and to valid values of the original media stream being associated with both valid values of the (p-1)'th and p'th compressed representation of the media stream.

14. (Original) The method according to claim 1 wherein the compressed representations of the media streams are generated by applying a compression function selected from the group consisting of:

- sampling functions;
- quantizing functions;
- linear quantizing functions;
- non-linear quantizing functions; and
- uniform quantizing functions.

15. (Original) The method according to claim 1 further comprising a step of compressing the enhancement data.

16. (Original) The method according to claim 1 wherein enhancement data includes enhancement data symbols; and wherein the method further comprising a step of variable length encoding the enhancement data symbols to provide enhancement data code words.

17. (Original) The method according to claim 1, wherein said media stream comprises one of the list consisting of:

MPEG compliant media stream;

original media stream;

JPEG media stream;

video stream;

audio stream;

data stream;

H.261 compliant media stream;

H.263 compliant stream;

streaming media stream;

JPEG stream;

AC-3 audio stream;

AAC audio stream; and

a stream containing a plurality of streams.

18. (Original) The method according to claim 1 further comprising a step of:
compressing the media stream according to the compression levels, thereby producing a plurality of compressed representations of the media stream;
defining a selected one of said compressed representations of the media stream a base media layer, the selected compressed version being compressed according to the base level;

determining if enhancement data is required for reconstructing a compressed representation of the media stream; and
generating enhancement data, in response to the determination.

19. (Original) The method according to claim 18 wherein the generated enhancement data reflects a relationship between symbols of two successive compressed representations of the media stream.

20. (Original) The method according to claim 18 wherein generating enhancement data if a symbol of a compressed representation of a media stream is associated with at least two symbols of a successive compressed representation of the media stream.

21. (Original) The method according to claim 18 wherein the media stream is defined as an original media stream; and

wherein a relationship between symbols of distinct compressed representations of the media stream reflect a relationship between original media stream symbols mapped to the symbols of the distinct compressed representations of the media stream.

22. (Original) The method according to claim 20 wherein the step of determining a necessity of enhancement data relating to symbols of a pair of compressed representations of the media stream comprises checking a relationship between symbols of lower compressed representations of the media stream, lower compressed representations of the media stream being characterized by a higher compression level.

23. (Original) The method according to claim 20 wherein the step of determining a necessity of enhancement data comprises defining a p 'th layer enhancement data for symbols of pair of a $(p-1)$ 'th and a p 'th compressed representations of the media stream, if the reconstruction of the symbols of the p 'th compressed representation of the media stream requires the p 'th layer enhancement data, whereas p ranges between 2 and k , k reflects the number of compression levels.

24. (Original) The method according to claim 23 wherein the media stream is defined as an original media stream; and

wherein generating a p'th layer enhancement data in response to symbols of the original media stream being associated with symbols of both the p'th and the (p-1)'th compressed representation of the media stream.

25. (Original) The method according to claim 23 wherein generating a p'th layer enhancement data in response to previous layer enhancement data and to symbols of the media stream being associated with symbols of both the p'th and the (p-1)'th compressed representation of the media stream.

26. (Original) The method according to claim 23 wherein each p'th layer enhancement data includes at least one p'th layer enhancement data symbol; and wherein a p'th layer enhancement data symbol reflects a relationship between symbols of a (p-1)'th and a p'th compressed representation of the media stream.

27. (Original) The method according to claim 26 comprising generating a p'th layer enhancement data symbol in response to an amount of symbols of the p'th compressed representation of the media stream associated with the symbol of the (p-1)'th compression function.

28. (Original) The method according to claim 26 comprising generating a p'th layer enhancement data symbol in response to previous layer enhancement data symbols and to an amount of symbols of the p'th compressed representation of the media stream associated with the symbol of the (p-1)'th compression function.

29. (Original) The method according to claim 26 comprising generating a p'th layer enhancement data symbol in response to symbols of the original media stream being associated with both the symbols of the (p-1)'th and the p'th compressed representation of the media stream.

30. (Original) The method according to claim 26 wherein generating a p'th layer enhancement data symbol in response previous layers enhancement data symbols and to symbols of the original media stream being associated with symbols of both the (p-1)'th and p'th compressed representation of the media stream.

31. (Original) The method according to claim 18 wherein the compressed representations of the media streams are generated by applying a compression function selected from the group consisting of:

- sampling functions;
- quantizing functions;
- linear quantizing functions;
- non-linear quantizing functions; and
- uniform quantizing functions.

32. (Original) The method according to claim 18 further comprising a step of compressing the enhancement data.

33. (Original) The method according to claim 18 wherein enhancement data includes enhancement data symbols; and wherein the method further comprising a step of variable length encoding the enhancement data symbols to provide enhancement data code words.

34. (Original) The method according to claim 18, wherein said media stream comprises one of the list consisting of:

- MPEG compliant media stream;
- original media stream;
- JPEG media stream;
- video stream;
- audio stream;
- data stream;
- H.261 compliant media stream;

H.263 compliant stream;
streaming media stream;
JPEG stream;
AC-3 audio stream;
AAC audio stream; and
a stream containing a plurality of streams.

35. (Original) The method of claim 18 further comprising a step of encrypting the base media layer, whereas the base media layer and the enhancement data define an encrypted representation of the media stream.

36. (Original) A method for generating a compressed representation of a media stream, the media stream comprising a plurality of media stream symbols, the method comprising the steps of:

determining a plurality of compression functions of statistically distinct compression levels, wherein applying a compression function on the media stream produces a compressed representation of the media stream; determining a relationship between valid values of compressed representations of the media stream;

defining the statistically most compressed representation of the media stream as a base layer media stream;

defining enhancement data for representing a relationship between valid values of the compressed representations of the media stream;

compressing the media stream by applying the compression functions, thereby producing a plurality of compressed representations of the media stream;

determining if enhancement data is required for reconstructing a compressed representation of the media stream; and

generating enhancement data, in response to the determination.

37. (Original) The method according to claim 36 wherein the p'th compressed representation is characterized by a p'th statistically compression level, p ranges between 1 to k, k reflecting the amount of compression functions; and wherein the p'th compressed representation of the media stream is defined as a p'th layer media stream.

38. (Original) The method according to claim 36 wherein the step of determining starts from the second media layer and ends at the original media stream, the original media stream is defined as the media stream.

39. (Original) The method according to claim 36 wherein determining a necessity of enhancement data relating to symbols of a pair of compressed representations of the media stream comprises checking a relationship between symbols of lower compressed representations of the media stream, lower compressed representations of the media stream being characterized by a higher compression level.

40. (Original) The method according to claim 36 wherein each compressed representation of the media stream comprising a plurality of symbols; the symbols of a p'th compressed representation of the media stream defined as a p'th media layer symbol;

wherein for each symbol of the original media layer and for each value of p between 2 and k executing the steps of:

converting the original media layer symbol to a (p-1)'th media layer symbol and to a p'th media layer symbol; whereas the base media layer symbol defined as the first media layer symbol;

determining whether a generation of a p'th layer enhancement data symbol is required for reconstructing the p'th media layer symbol; and

generating a p'th layer enhancement data symbol, in response to the determination.

41. (Original) The method according to claim 40 wherein generating a p'th layer enhancement data in response to previous layer enhancement data and to symbols of the

media stream being associated with symbols of both the p 'th and the $(p-1)$ 'th compressed representation of the media stream.

42. (Original) The method according to claim 40 wherein for each p that exceeds one, the determination is responsive to an amount of p 'th media layer symbols associated with the $(p-1)$ 'th media layer symbol.

43. (Original) The method according to claim 40 wherein for each p that exceeds one, the determination is responsive to symbols of the media stream associated with the p 'th media layer symbol and with the $(p-1)$ 'th media layer symbol.

44. (Original) The method according to claim 40 wherein for each p that exceeds 2, the determination is based upon $(p-m)$ 'th media layer symbols that were generated from the base media layer symbol, $1 < m < p$.

45. (Original) The method according to claim 40 wherein for each p that exceeds one, the determination is responsive to an updated $(p-1)$ 'th layer symbol set, the updated $(p-1)$ 'th symbol set comprising of original media layer symbols associated with the $(p-1)$ 'th and previous media layer symbols.

46. (Original) The method according to claim 40 wherein for each p that exceeds one, the determination is responsive to an original p 'th layer symbol sets associated with at least one relevant p 'th media layer symbol, a relevant p 'th media layer symbol being mapped to the $(p-1)$ 'th media layer symbol, the original p 'th symbol set comprising of original media layer symbols associated with the p 'th media layer symbol.

47. (Original) The method according to claim 40 wherein generating enhancement data in response to an updated $(p-1)$ 'th layer symbol set and a p 'th media layer symbol set; the updated $(p-1)$ 'th media layer set includes original media layer symbols associated with previous media layer symbols.

48. (Original) The method according to claim 40 wherein the relationship between p 'th and $(p-1)$ 'th media layer symbols reflects a relationship between original media layer symbols that are mapped to the p 'th and the $(p-1)$ 'th media layer symbols.

49. (Original) The method according to claim 40 wherein for $p=k$ the determination is responsive to the amount of k 'th media layer symbols that are included within an updated $(k-1)$ 'th layer symbol set; wherein the k 'th media layer is the original media layer, the updated $(k-1)$ 'th layer symbol set comprising original media layer symbols associated with the $(k-1)$ 'th and previous media layer symbols.

50. (Original) The method according to claim 40 wherein a p 'th enhancement data layer includes at least one p 'th layer enhancement data symbol; and

wherein, generating a p 'th layer enhancement data symbol, in response to previous layer enhancement data symbols and to an amount of symbols of the p 'th compressed representation of the media stream associated with the symbol of the $(p-1)$ 'th compression function.

51. (Original) The method according to claim 20 wherein a p 'th enhancement data layer includes at least one p 'th layer enhancement data symbol; and

wherein generating a p 'th layer enhancement data symbol in response to previous layers enhancement data symbols and to symbols of the original media stream being associated with symbols of both the $(p-1)$ 'th and p 'th compressed representation of the media stream.

52. (Original) The method according to claim 40 further comprising a step of defining an original $(p-1)$ 'th layer symbol set for each $(p-1)$ 'th media layer symbol, the original $(p-1)$ 'th media layer set comprising of original media layer symbols associated with p 'th media layer symbol that are associated with the $(p-1)$ 'th media layer symbols.

53. (Original) The method according to claim 52 further comprising the steps of:

finding the associated p 'th media layer symbols associated with each original media layer symbol of the original $(p-1)$ 'th layer symbol set; and

defining a union of all the associated p 'th media layer symbols as a p 'th media layer set.

54. (Original) The method according to claim 53 further comprising the steps of:
dividing the original $(p-1)$ 'th layer symbol set to subsets, each subset corresponding to a single symbol out of the p 'th media layer set; and
generating a p 'th layer enhancement data symbol, in view of an original p 'th layer symbol subset associated with a true p 'th media layer symbol.

55. (Original) The method according to claim 54 further comprising a step of replacing an original p 'th layer symbol set with the original p 'th layer symbol subset associated with a true p 'th media layer symbol.

56. (Original) The method according to claim 36 further comprising a step of compressing the enhancement data.

57. (Original) The method according to claim 36 wherein enhancement data includes enhancement data symbols; and wherein the method further comprising a step of variable length encoding the enhancement data symbols to provide enhancement data code words.

58. (Original) The method according to claim 57 wherein defining an enhancement data code word reflecting a relationship between a $(p-1)$ 'th media layer symbol and a p 'th media layer symbol in response to the complexity of reconstructing an original media layer symbol from the p 'th media layer symbol.

59. (Original) The method according to claim 36, wherein said media stream comprises one of the list consisting of:

MPEG compliant media stream;

original media stream;

JPEG media stream;
video stream;
audio stream;
data stream;
H.261 compliant media stream;
H.263 compliant stream;
streaming media stream;
JPEG stream;
AC-3 audio stream;
AAC audio stream; and
a stream containing a plurality of streams.

60. (Original) The method of claim 36 further comprising a step of encrypting the base media layer, whereas the base media layer and the enhancement data defining an encrypted representation of the media stream.

61 – 147. (Withdrawn)

148. (Original) The method according to claim 16 wherein defining an enhancement data code word reflecting a relationship between a (p-1)'th media layer symbol and a p'th media layer symbol in response to a complexity of reconstructing an original media layer symbol from the p'th media layer symbol.

149. (Original) The method according to claim 33 wherein defining an enhancement data code word reflecting a relationship between a (p-1)'th media layer symbol and a p'th media layer symbol in response to a complexity of reconstructing an original media layer symbol from the p'th media layer symbol.

150. (Original) The method according to any claim of claims 16, 33, 57 and 83 wherein defining an enhancement data code word reflecting a relationship between a (p-1)'th

media layer symbol and a p 'th media layer symbol in response to an amount of p 'th media layer symbols associated with the $(p-1)$ 'th media layer symbols.

151. (Original) The method according to any claim of claims 16, 33, 57 and 83 wherein defining an enhancement data code word reflecting a relationship between a $(p-1)$ 'th media layer symbol and a p 'th media layer symbol in response to an amount of original media layer symbols associated with each of the p 'th media layer symbols associated with the $(p-1)$ 'th media layer symbol.

152. (Original) The method according to any claim of claims 16, 33, 57 and 83 wherein defining an enhancement data code word reflecting a relationship between a $(p-1)$ 'th media layer symbol and a p 'th media layer symbol in response to a statistical frequency of the p 'th media layer symbol.

153. (Original) The method according to any claim of claims 16, 33, 57 and 83 wherein defining an enhancement data code word reflecting a relationship between a $(p-1)$ 'th media layer symbol and a p 'th media layer symbol in response to a statistical probability of the $(p-1)$ 'th media layer symbol.

154. (Original) The method according to any claim of claims 16, 33, 57 and 83 wherein defining an enhancement data code word reflecting a relationship between a $(p-1)$ 'th media layer symbol and a p 'th media layer symbol in response to an amount of yet additional enhancement data symbols required to reconstruct an original media layer symbol out of the $(p-1)$ 'th media layer symbol.

155. (Original) The method according to claim 18 further comprising a step of embedding a watermark in at least one of the base media layer and an enhancement data layer.